



**SLOVENSKI STANDARD**  
**SIST EN 60156:1997**

**01-avgust-1997**

---

**Insulating liquids - Determination of the breakdown voltage at power frequency -  
Test method (IEC 156:1995)**

Insulating liquids - Determination of the breakdown voltage at power frequency - Test  
method

Isolierflüssigkeiten - Bestimmung der Durchschlagsspannung bei Netzfrequenz -  
Prüfverfahren

**iTeh STANDARD PREVIEW**

**(standards.iteh.ai)**

Isolants liquides - Détermination de la tension de claquage à fréquence industrielle -  
Méthode d'essai

[SIST EN 60156:1997](https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997)

[https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-](https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997)

[f23200476cb4/sist-en-60156-1997](https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997)

**Ta slovenski standard je istoveten z: EN 60156:1995**

---

**ICS:**

29.040.01      Izolacijski fluidi na splošno      Insulating fluids in general

**SIST EN 60156:1997**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 60156:1997](#)

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60156**

August 1995

ICS 29.040.20

Descriptors: Electrical insulating materials, liquid electrical insulating materials, tests, determination, breakdown voltage

English version

**Insulating liquids**  
**Determination of the breakdown voltage at power frequency**  
**Test method**  
**(IEC 156:1995)**

Isolants liquides  
Détermination de la tension de  
claquage à fréquence industrielle  
Méthode d'essai  
(CEI 156:1995)

Isolierflüssigkeiten  
Bestimmung der Durchschlagspannung  
bei Netzfrequenz  
Prüfverfahren  
(IEC 156:1995)

SIST EN 60156:1997

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

This European Standard was approved by CENELEC on 1995-07-04. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

The text of document 10/338/DIS, future edition 2 of IEC 156, prepared by IEC TC 10, Fluids for electrotechnical applications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60156 on 1995-07-04.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-07-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

---

### Endorsement notice

The text of the International Standard IEC 156:1995 was approved by CENELEC as a European Standard without any modification.

(standards.iteh.ai)

SIST EN 60156:1997

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

**Annex ZA (normative)****Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 52	1960	Recommendations for voltage measurement by means of sphere-gaps (one sphere earthed)	-	-
IEC 60	series	High-voltage test techniques	HD 588.1 S1 EN 60060-2	1991 1994
IEC 475	1974	Method of sampling liquid dielectrics	-	-

[SIST EN 60156:1997](https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997)

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 60156:1997

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
156

Deuxième édition  
Second edition  
1995-07

---



---

Isolants liquides –  
Détermination de la tension de claquage  
à fréquence industrielle –  
Méthode d'essai

iTeh STANDARD PREVIEW

(standards.iTeh.ai)  
Insulating liquids –  
Determination of the breakdown voltage  
at power frequency –  
Test method

<https://standards.iteh.ai/standards/iec/sist/f24f2c19-8920-4b64-abc5-f23200476cb4/sist-en-60156-1997>

© CEI 1995 Droits de reproduction réservés — Copyright — all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembe Genève, Suisse



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

L

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

## CONTENTS

	Page
FOREWORD .....	5
INTRODUCTION .....	7
Clause	
1 Scope .....	9
2 Normative references .....	9
3 Electrical apparatus .....	9
3.1 Voltage regulator .....	9
3.2 Step-up transformer .....	11
3.3 Current-limiting resistors .....	11
3.4 Switching system .....	11
3.5 Measuring device .....	13
4 Test assembly .....	13
4.1 Test cell .....	13
4.2 Electrodes .....	13
4.3 Stirring (optional) .....	15
5 Preparation of electrodes .....	15
6 Test assembly preparation .....	15
7 Sampling .....	17
7.1 Sample containers .....	17
7.2 Sampling technique .....	17
8 Condition of the sample .....	17
9 Test procedure .....	17
9.1 Sample preparation .....	17
9.2 Filling of the cell .....	19
9.3 Application of voltage .....	19
10 Report .....	19
11 Test data dispersion .....	19
Figures .....	20

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

SIST EN 60156:1997

<https://standards.iteh.ai/catalog/standards/sist/f24f2c19-8920-4b64-abe5-f23200476cb4/sist-en-60156-1997>

f23200476cb4/sist-en-60156-1997



INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**INSULATING LIQUIDS – DETERMINATION OF  
THE BREAKDOWN VOLTAGE AT POWER FREQUENCY –  
TEST METHOD**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 156 has been prepared by IEC technical committee 10: Fluids for electrotechnical applications.

This second edition cancels and replaces the first edition published in 1963 and constitutes a technical revision.

The text of this standard is based on the following documents:

DIS	Report on voting
10/338/DIS	10/346/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.